

Message Text

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ACTION OES-05

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TAGS: TECH, MX

SUBJECT: ERDA-INEN COOPERATION

REF: STATE 23618

SUMMARY: ONGOING PROGRAMS OF MEXICAN NATIONAL INSTITUTE OF
NUCLEAR ENERGY (INEN) REQUESTED REF CABLE ARE DESCRIBED.
INFO IS BASED IN PART ON RECENT MATERIAL SUPPLIED BY INEN
DIRECTOR GENERAL ALBA TO PRESIDENT. END SUMMARY

I. NUCLEAR FUEL CYCLE

1. U EXPLORATION: SURVEYS CARRIED OUT IN SONORA,
DURANGO, COAHUILA, CHIHUAHUA, NUEVO LEON, AND TAMAULIPAS.
PROVEN AND PROBABLY RESERVES THESE AREAS ARE: SONORA-
475 TONNES (T) U308, AVERAGE ASSAY APPROX. 0.19 PERCENT
U308; DURANGO-210 T, 0.06 PERCENT; CHIHUAHUA- 3250 T,
0.1 TO 0.3 PERCENT; NUEVO LEON AND TAMAULIPAS- 1990 T,
0.2 PERCENT.

2. ORE MILLING: 1.6 MILLION DOLLARS U.S. HAVE BEEN
AUTHORIZED TO CONSTRUCT PLANT WITH NORMAL CAPACITY OF 290 T
ORE PER DAY WITH ANNUAL PRODUCTION OF 140 T
CONCENTRATE. PLANT TO START UP NEXT YEAR. A SECOND
URANIUM MILL PLANNED FOR 1978 OPERATION. INEN ALSO
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PLANS EXTRACT U308 AS BYPRODUCT PHOSPHORIC ACID PLANT.

3. REFINING AND CONVERSION: PILOT SCALE WORK ON UO₂ PRODUCTION IS UNDERWAY.
4. FUEL FABRICATION: PILOT PLANT FOR FABRICATING SINTERED UO₂ PELLETS HAS BEEN BUILT. FUEL ELEMENT STUDIES ARE BEING CARRIED OUT IN THE NUCLEAR CENTER RESEARCH REACTOR.
5. REPROCESSING: DESIGN PARAMETERS FOR A CHEM PROCESSING PILOT PLANT CONTINUE TO BE DEVELOPED.

6. NUCLEAR POWER PLANTS: THE LAGUNA VERDE PLANT CONSTRUCTION CONTINUES AT A SLOW PACE. THIS IS A RESPONSIBILITY OF FEDERAL ELECTRICITY COMMISSION(CFE). INEN IS DEVELOPING QUALITY CONTROL AND SAFETY CRITERIA BASED ON INTERNATIONAL STANDARDS. THEY HAVE ALSO REVISED THEIR PROCEDURES FOR ISSUING NUCLEAR PLANT CONSTRUCTION PERMITS AND OPERATING LICENSES. STUDIES ARE ALSO BEING CARRIED OUT ON FAST REACTORS AND SODIUM TECHNOLOGY. A TRIPARTITE COMMISSION, MADE UP OF REPRESENTATIVES FROM CFE, INEN AND THE ELECTRICAL WORKERS UNION, HAS BEEN CARRYING OUT A COMPARATIVE STUDY OF VARIOUS POWER REACTOR TYPES AND THEIR ASSOCIATED FUEL CYCLES.

II. NUCLEAR APPLICATIONS

1. AGRICULTURE: 16 RESEARCH PROJECTS ARE BEING CARRIED OUT IN THE FIELD IN CHAPINGO, ATIZAPAN, SANTA ELENA AND EL BAJIO, TO DEVELOP INCREASED PRODUCTION PER ACRE OF CROPS WITH RATIONAL WATER AND FERTILIZER REQUIREMENTS. CROPS BEING STUDIED ARE CORN, SORGHUM, ALFALFA, RICE, GARLIC, POTATOES, WHEAT AND BEANS.
2. NUCLEAR MEDICINE: THE NUCLEAR MEDICINE PROGRAM INCLUDES THE USE OF RADIOISOTOPES IN THE DIAGNOSIS OF PULMONARY EMBOLISM AND VENAL THROMBOSIS. INEN ALSO HAS A PROGRAM TO DEVELOP AND SUPPLY NUCLEAR EQUIPMENT FOR RESEARCH AND HOSPITAL USE.
3. RADIOBIOLOGY: A RADIOBIOLOGY LABORATORY IS IN OPERATION AT THE NUCLEAR CENTER. STUDIES ON BIOLOGICAL EFFECTS OF RADIATION AND GENETIC DAMAGE ARE CARRIED OUT. IN SUPPORT OF AN NSF-CONACYT COOPERATIVE STUDY, INEN PARTICIPATES IN THE FRUIT FLY CONTROL PROGRAM. INVESTI-

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- GATIONS ARE ALSO UNDERWAY RELATING TO THE INDUSTRIAL PRODUCTION OF SPIRULINA PLUTENSIS ALGAE AND ITS CONVERSION INTO A HIGH PROTEIN FOOD.
4. TECHNOLOGICAL APPLICATIONS: AMONG PROGRAMS UNDERWAY ARE IRRADIATION OF HENEQUEN FIBERS IN PRESENCE OF MONOMERS TO INCREASE TENSILE STRENGTH AND DEINFESTATION OF CORN BY IRRADIATION. ISOTOPIC TRACERS ARE BEING USED IN STUDIES OF SECONDARY RECUPERATION IN OIL

WELLS, LEAK DETECTION IN A DAM AND TRACING SEDIMENTS IN CANALS AND WATER SYSTEMS. A BUILDING TO HOUSE A ONE MILLION CURIE GAMMA IRRADIATOR IS UNDER CONSTRUCTION, EXPECTED TO BE COMPLETED SOON.

IIIM RESEARCH AND DEVELOPMENT

1. NUCLEAR PHYSICS: THE TRIGA MARK III RESEARCH REACTOR AND THE TANDEM ACCELERATOR ARE THE PRINCIPAL FACILITIES USED IN THE INEN EXPERIMENTAL NUCLEAR PHYSICS PROGRAM. IN ADDITION, AN ATOMIC AND MOLECULAR PHYSICS PROGRAM IS CARRIED OUT AT THE INEN NUCLEAR CENTER. PLASMA PHYSICS RESEARCH INVOLVES STUDIES OF HEAVY PARTICLES IN MAGNETIC FIELDS, PLASMA DIAGNOSTICS AND PLASMA DIFFUSION IN MULTIPOLAR MAGNETIC FIELDS.
2. THE APPLIED RESEARCH PROGRAM INCLUDES STUDIES OF HEAVY WATER PRODUCTION TECHNOLOGY AND LIQUID SODIUM HEAT TRANSFER.
3. RADIOISOTOPE PRODUCTION FOR BOTH APPLIED AND RESEARCH USES CONTINUES TO BE CARRIED OUT AT THE NUCLEAR CENTER.

COMMENT: REF CABLE REQUESTED EMBASSY VIEWS ON PROCEDURAL STEPS FOR INITIATING ERDA-INEN DIALOGUE. IN ORDER INITIATE DISCUSSIONS COOPERATION, EMBASSY SUGGESTS SMALL ERDA TEAM COME TO MEXICO CITY FOR MEETING WITH INEN AND CONACYT OFFICIALS. SCICOUNS/ERDA SCIREP WILL BE PLEASED MAKE APPROPRIATE ARRANGEMENTS. PLEASE ADVISE.
JOVA

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